

- (54) METHOD FOR HOT-WORKING TiNi-BASED SHAPE MEMORY ALLOY  
 (11) 2-43351 (A) (43) 13.2.1990 (19) JP  
 (21) Appl. No. 63-191574 (22) 29.7.1988  
 (71) KOBE STEEL LTD (72) ATSUYUKI MIYAMOTO(3)  
 (51) Int. Cl. C22F1/10

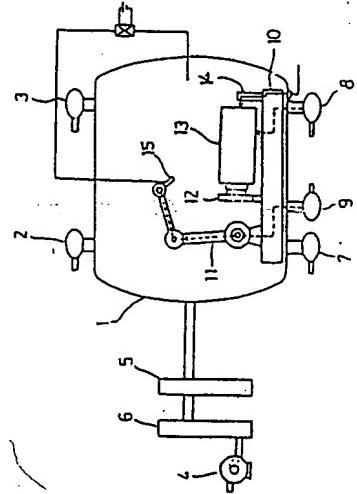
**PURPOSE:** To hot-work a TiNi-based shape memory alloy at a higher temp. than before and to improve the productivity by previously forming an atmospheric oxidation preventing layer on the surface of the alloy, and then hot-working the alloy in a specified temp. range.

**CONSTITUTION:** When a TiNi-based shape memory alloy is hot-worked, an atmospheric oxidation preventing layer is previously formed on the alloy surface, and the alloy is hot-worked at a temp. higher than 900°C and lower than the eutectic temp. which is on the Ti-richer side than the TiNi intermetallic compd. layer. Ni, Ni-based alloys, various stainless steels, Mo, Mo alloys, etc., are used as a metal having excellent oxidation resistance. The preventing layer is formed by covering the base metal with a sheet, thermal spraying, dipping the base metal in a melt, etc. As a result, the alloy can be hot-worked at  $\geq 900^{\circ}\text{C}$ , and the productivity in hot working is improved.

- (54) PRODUCTION OF MEMBER FOR MOLTEN METAL BATH  
 (11) 2-43352 (A) (43) 13.2.1990 (19) JP  
 (21) Appl. No. 63-192753 (22) 3.8.1988  
 (71) TOCALO CO LTD (72) YOSHIO HARADA(2)  
 (51) Int. Cl. C23C4/06

**PURPOSE:** To produce the title member for a molten metal bath having excellent erosion resistance and releasability by plasma-spraying a boride on the surface of a steel in a low-pressure nonoxidizing atmosphere.

**CONSTITUTION:** The inside of a chamber 1 is filled with a specified low-pressure nonoxidizing atmosphere, and a material 13 to be treated is heated to 500-900°C and held at the temp. A melt-spraying gun 15 is used as an anode, and the material 13 as a cathode. A boride ( $\text{ZrB}_2$ ,  $\text{TiB}_2$ ) or a boride-based cermet material added with 5-28wt.% Co is melt-sprayed on the surface of the material 13 through the gun 15 in specified thickness. As a result, a member for a molten nonferrous metal plating bath having excellent erosion resistance and releasability is obtained, and the member can be advantageously used for various rolls of a continuous hot dipping device, an injection nozzle, etc.



- (54) DEVICE AND METHOD FOR METAL OXIDATION TREATMENT  
 (11) 2-43353 (A) (43) 13.2.1990 (19) JP  
 (21) Appl. No. 63-195185 (22) 4.8.1988  
 (71) TADAHIRO OMI(1) (72) TADAHIRO OMI(3)  
 (51) Int. Cl. C23C8/18//H01L21/31

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**PURPOSE:** To produce the metal which is to be oxidation-treated and has excellent corrosion resistance by cleaning the surface of the metal to be oxidation-treated in an oxidation furnace, then subjecting the metal to oxidation under heating in a dry oxidation atmosphere, thereby forming passive films.

**CONSTITUTION:** Gaseous Ar for purging is passed into stainless steel pipes 101 and the oxidation furnace 102 via gas introducing pipes 107, 108 from gas supply piping lines 118, 119 to get rid to the contaminants mainly consisting of moisture and to discharge the same from discharge lines 120, 121, thereby generating an inert gaseous atmosphere. The oxidation furnace 102 is then heated by a heater 122 and heaters 125, 126 are simultaneously heated as well. The passivation treatment is then executed by replacing the gas to be passed into the steel pipes 101 via the introducing pipe 107 with the atmosphere gas ( $\text{O}_2$ ) for the oxidation treatment and starting the oxidation treatment. The good passive films are easily and efficiently formed in the steel pipes 101 in this

